

wherein:

- a + b + c is from 0 to 3,
- a, b and c are from 0 to 3,
- R, which is identical or different, is a monovalent hydrocarbonaceous group,
- E, which is identical or different, is a monovalent functional substituent, carrying one or more peroxy(-O-O-) functional group Fpo,
- G, which is identical or different, is a functional substituent comprising one or more Fpo-stabilizing functional group Fstab, which are identical to or different from one another, capable of bonding via weak bonds with the Fpo functional group,
- the concentration {Fpo} of Fpo functional groups, expressed by the ratio

$$\{Fpo\} = \frac{Fpo \text{ number}}{\text{Total number of silicon atoms in the POS}}, \text{ is greater than 0, and}$$

- the concentration {T and/or Q}, as mol%, of units selected from the group consisting of T units and Q units, is from 0 to 20, T units being defined as siloxane units wherein a+b+c=1, and Q units being defined as siloxane units wherein a+b+c=0.

16. (New) Polyorganosiloxanes according to claim 15, wherein R is a linear C₁-C₄ alkyl group, a branched C₁-C₄ alkyl group, a phenyl group, a xylyl group or a tolyl group.

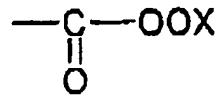
17. (New) Polyorganosiloxanes according to claim 15, whereat least one E substituent further comprises one or more Fpo-stabilizing functional group Fstab, which are identical to or different from one another, and capable of bonding via weak bonds with the Fpo functional group.

18. (New) Polyorganosiloxanes according to claim 15, wherein 0.1 ≤ {Fpo} ≤ 0.6.

19. (New) Polyorganosiloxanes according to claim 15, wherein 0 ≤ {T and/or Q} ≤ 8.

20. (New) Polyorganosiloxanes according to claim 15, wherein:

- E, which is identical or different, is selected from the group consisting of (cyclo)aliphatic hydrocarbonaceous groups, aromatic hydrocarbonaceous groups and heterocyclic hydrocarbonaceous groups, said groups comprising, optionally, one or more heteroatom and being, optionally, substituted, and
- the Fpo group is included:



- in an acyl peroxide of the following formula, , wherein X is hydrogen, or an aliphatic, alicyclic, aromatic, or heterocyclic monovalent hydrocarbonaceous radical comprising hydrogen and carbon atoms, and, optionally, one or more heteroatom, said radical being optionally substituted, or

2

- in a peroxide residue comprising an oxygen carrier selected from the group consisting of sulfur, phosphorus, silicon and boron.

21. (New) Polyorganosiloxanes according to claim 20, wherein the heteroatom is N, S, or O.

22. (New) Polyorganosiloxanes according to claim 20, wherein X is a radical having the same definition than R in formula (I), a halogen atom, or a cation forming a salt with peroxy anions.

23. (New) Polyorganosiloxanes according to claim 22, wherein X is an elements from columns Ia and IIA of the Periodic Table.

24. (New) Polyorganosiloxanes according to claim 15, wherein Fstab generates weak bonds (hydrogen bonds) with Fpo functional groups, and is selected from the group consisting of:

- functional units comprising nitrogen, oxygen, fluorine, sulfur or phosphorus,
- cationic units,
- chelating units comprising one or more ether or amine functional group,
- phosphonate chelating units, and
- sulfonate chelating units.

25. (New) Polyorganosiloxanes according to claim 15, wherein Fstab generates weak bonds (hydrogen bonds) with Fpo functional groups, and is selected from the group consisting of carboxylic units, carboxylate units, amide units, imide units, sulfonamide

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units, hydroxyl units, alkoxy units, amine units, organofluorinated units, and quaternary ammonium units.

26. (New) Polyorganosiloxanes according to claim 15, of the following formula (II):



wherein

2

- R^1 and R^3 , which are identical or different, are hydrogen, a hydroxyl or a monovalent a hydrocarbonaceous group,
- R^2 , which is identical or different, is hydrogen, hydroxyl, or a monovalent a hydrocarbonaceous group,
- $2 \leq m + n + o \leq 300$,
- $0 \leq m \leq 200$,
- $0 \leq n \leq 50$, and
- $0 \leq o \leq 50$.

27. (New) Polyorganosiloxanes according to claim 26, wherein

- $3 \leq m + n + o \leq 50$,
- $1 \leq m \leq 100$,
- $1 \leq n \leq 10$, and
- $1 \leq o \leq 10$.

28. (New) Polyorganosiloxanes according to claim 26, wherein

- $5 \leq m + n + o \leq 20$,
- $1 \leq m \leq 10$,
- $2 \leq n \leq 4$, and
- $2 \leq o \leq 4$.

29. (New) Polyorganosiloxanes according to claim 26, wherein:

- R^1 and R^3 are a C_1 - C_3 alkyl,
- R^2 is a C_1 - C_3 alkyl, and
- E carries Fpo and Fstab functional groups.

30. (New) Polyorganosiloxanes according to claim 29, wherein R^1 , R^2 and R^3 are methyl groups.

31. (New) Polyorganosiloxanes according to claim 15, wherein E further carries at least one bicarboxylated, benzoxyl or imide unit.

32. (New) A process for the preparation of the polyorganosiloxanes according to claim 15, essentially consisting in oxidizing polysiloxane precursors of the polyorganosiloxanes according to claim 15, comprising a step of oxidizing with an agent selected from the group consisting of H_2O_2 , O_2 , O_3 and their mixtures, the polysiloxane precursors being distinguished from the polyorganosiloxanes comprising peroxy groups according to claim 15 in that they comprise one or more F'po functional groups which are Fpo functional group precursors and are composed of:

- carboxyl residues of formula $\text{--C}(=\text{O})\text{--O--X}'$ wherein X' is hydrogen, or an aliphatic, alicyclic, aromatic, or heterocyclic monovalent hydrocarbonaceous radical comprising hydrogen and carbon atoms, and, optionally, one or more heteroatom, said radical being, optionally, substituted,

- acid anhydride residues of formula $\text{--C}(=\text{O})\text{--O--C}(=\text{O})\text{--}$;
- aldehyde residues, or
- oxide residues comprising sulfur, phosphorus, silicon or boron.

33. (New) A process according to claim 32, wherein the polysiloxanes precursors carry functional substituents selected from the group consisting of:

- anhydride substituents
- carboxyl substituents,
- aldehyde substituents,
- sulfonyl substituents,
- phosphoryl substituents,
- siloxyl substituents, and
- boroxide substituents.

34. (New) A process according to claim 33, wherein the polysiloxanes precursors carry

- anhydride groups, the oxidation being carried out with H_2O_2 in the presence of a strong base catalyst, or

- carboxylic groups, the oxidation being carried out with H_2O_2 in the presence of a strong acid catalyst.

35. (New) A process according to 32, wherein polysiloxanes precursors are used with a molar purity greater than or equal to 90%.

36. (New) A process according to 32, wherein polysiloxanes precursors are used with a molar purity greater than or equal to 95%.

37. (New) Polysiloxanes precursors as defined in claim 32.

38. (New) A dental composition, comprising polyorganosiloxanes according to claim 15.

39. (New) A detergent composition, comprising polyorganosiloxanes according to claim 15.